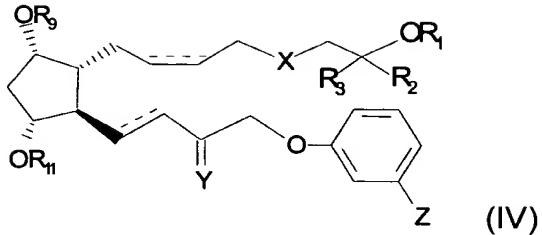


of said compound:

TC320X



wherein:

$R_1$  = H;  $C_1-C_{12}$  straight-chain or branched alkyl;  $C_1-C_{12}$  straight-chain or branched acyl;  $C_3-C_8$  cycloalkyl; or a cationic salt moiety;

$R_2$ ,  $R_3$  = H, or  $C_1-C_5$  straight-chain or branched alkyl; or  $R_2$  and  $R_3$  taken together may represent O;

$X$  = O, S, or  $CH_2$ ;

— represents any combination of a single bond, or a *cis* or *trans* double bond for the alpha (upper) chain; and a single bond or *trans* double bond for the omega (lower) chain;

$R_9$  = H,  $C_1-C_{10}$  straight-chain or branched alkyl, or  $C_1-C_{10}$  straight-chain or branched acyl;

$R_{11}$  = H,  $C_1-C_{10}$  straight-chain or branched alkyl, or  $C_1-C_{10}$  straight-chain or branched acyl;

$Y$  = O; or H and  $OR_{15}$  in either configuration wherein  $R_{15}$  = H,  $C_1-C_{10}$  straight-chain or branched alkyl, or  $C_1-C_{10}$  straight-chain or branched acyl; and

$Z$  = Cl or  $CF_3$ ;

with the proviso that when  $R_2$  and  $R_3$  taken together represent O, then  $R_1 \neq C_1-C_{12}$  straight-chain or branched acyl; and when  $R_2 = R_3 = H$ , then  $R_1 \neq$  a cationic salt moiety; and

with the further proviso that the following compound be excluded:

3  
32

cyclopentane heptenol-5-cis-2-(3- $\alpha$ -hydroxy-4-m-chlorophenoxy-1-trans-butenyl)-3,5 dihydroxy, [1 $\alpha$ , 2 $\beta$ , 3 $\alpha$ , 5 $\alpha$ ].

25. The method of claim 24, wherein for the compound (IV):  
R<sub>2</sub>, R<sub>3</sub> taken together represent O;  
X = CH<sub>2</sub>;  
— represents a *cis* double bond for the alpha (upper) chain and a *trans* double bond for the omega (lower) chain;  
R<sub>9</sub> and R<sub>11</sub> = H; and  
Y = OH in the alpha configuration and H in the beta configuration.

26. The method of claim 25, wherein for the compound (IV): Z = CF<sub>3</sub>.

27. The method of claim 24, wherein: R<sub>2</sub> = R<sub>3</sub> = H, or R<sub>2</sub> and R<sub>3</sub> taken together represent O; X = O or CH<sub>2</sub>; R<sub>9</sub> = R<sub>11</sub> = H; Y = H and OR<sub>15</sub>; and R<sub>15</sub> = H.

*cont* 28. The method of claim 27, wherein: R<sub>1</sub> = H, C<sub>1</sub>-C<sub>12</sub> straight chain or branched alkyl or cationic salt moiety; and R<sub>2</sub> and R<sub>3</sub> taken together represent O.

29. The method of claim 28, wherein the compound of formula (IV) is selected from the group consisting of 3-oxacloprostenol, 13,14-dihydrofluprostenol, and their pharmaceutically acceptable esters and salts.

30. The method of claim 27, wherein: R<sub>1</sub> = H or C<sub>1</sub>-C<sub>12</sub> straight chain or branched acyl; and R<sub>2</sub> = R<sub>3</sub> = H.

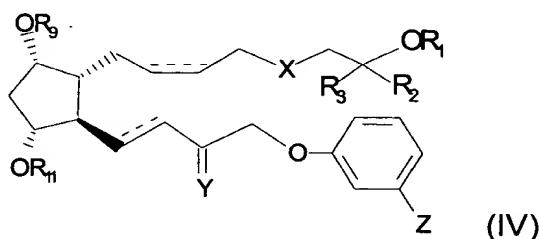
31. The method of claim 30, wherein the compound formula (IV) is 13,14-dihydrocloprostenol pivaloate.

<sup>1</sup>  
32. The method of claim <sup>24</sup>, wherein between about 0.01 and about 1000 µg/eye of the compound is administered.

<sup>10</sup>  
<sup>9</sup>  
33. The method of claim <sup>32</sup>, wherein between about 0.1 and about 100 µg/eye of the compound is administered.

<sup>11</sup>  
<sup>6</sup>  
34. The method of claim <sup>33</sup>, wherein between about 0.1 and about 10 µg/eye of the compound is administered.

<sup>12</sup>  
35. A topical ophthalmic composition for the treatment of glaucoma and ocular hypertension comprising an ophthalmically acceptable carrier and a therapeutically effective amount of a compound having the absolute stereochemical structure of the following formula (IV), and being substantially free of the enantiomer of said compound:



wherein:

$R_1$  = H; C<sub>1</sub>-C<sub>12</sub> straight-chain or branched alkyl; C<sub>1</sub>-C<sub>12</sub> straight-chain or branched acyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl; or a cationic salt moiety;

$R_2$ ,  $R_3$  = H, or C<sub>1</sub>-C<sub>5</sub> straight-chain or branched alkyl; or  $R_2$  and  $R_3$  taken together may represent O;

X = O, S, or CH<sub>2</sub>;

— represents any combination of a single bond, or a *cis* or *trans* double bond for the alpha (upper) chain; and a single bond or *trans* double bond for the omega (lower) chain;

5  
*BH*

$R_9$  = H, C<sub>1</sub>-C<sub>10</sub> straight-chain or branched alkyl, or C<sub>1</sub>-C<sub>10</sub> straight-chain or branched acyl;

$R_{11}$  = H, C<sub>1</sub>-C<sub>10</sub> straight-chain or branched alkyl, or C<sub>1</sub>-C<sub>10</sub> straight-chain or branched acyl;

Y = O; or H and OR<sub>15</sub> in either configuration wherein R<sub>15</sub> = H, C<sub>1</sub>-C<sub>10</sub> straight-chain or branched alkyl, or C<sub>1</sub>-C<sub>10</sub> straight-chain or branched acyl; and

Z = Cl or CF<sub>3</sub>;

with the proviso that when R<sub>2</sub> and R<sub>3</sub> taken together represent O, then R<sub>1</sub> ≠ C<sub>1</sub>-C<sub>12</sub> straight-chain or branched acyl; and when R<sub>2</sub> = R<sub>3</sub> = H, then R<sub>1</sub> ≠ a cationic salt moiety; and

with the further proviso that the following compound be excluded:

cyclopentane heptenol-5-cis-2-(3- $\alpha$ hydroxy-4-m-chlorophenoxy-1-trans-butenyl)-3,5 dihydroxy, [1<sub>α</sub>, 2<sub>β</sub>, 3<sub>α</sub>, 5<sub>α</sub>].

*13*

*36.* The composition of claim *35*, wherein for the compound (IV):

R<sub>2</sub>, R<sub>3</sub> taken together represent O;

X = CH<sub>2</sub>;

— represents a *cis* double bond for the alpha (upper) chain and a *trans* double bond for the omega (lower) chain;

R<sub>9</sub> and R<sub>11</sub> = H; and

Y = OH in the alpha configuration and H in the beta configuration.

*11*

*37.* The composition of claim *36*, wherein for the compound (IV): Z = CF<sub>3</sub>.

*13*

*38.* The composition of claim *36*, wherein: R<sub>2</sub> = R<sub>3</sub> = H, or R<sub>2</sub> and R<sub>3</sub> taken together represent O; X = O or CH<sub>2</sub>; R<sub>9</sub> = R<sub>11</sub> = H; Y = H and OR<sub>15</sub>; and R<sub>15</sub> = H.